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Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
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05920

United Nations Industrial Development Organization

Distr.
LIMITED

ID/WG.189/13
25 October 1974

Original: ENGLISH

Fifth Training Programme in Plastics Technology
Vienna, Austria, 23 September - 22 November 1974

Plastics processing

THE DEVELOPMENT OF THE PLASTICS INDUSTRY IN NIGERIA 1/

by

S. I. Ahonkhai*

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* Research Officer, Federal Institute of Industrial Research, Lagos, Nigeria

id.74-7242

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C O N T E N T S

ACKNOWLEDGEMENT

The author is grateful to Mr. M. O. Yusuf for his useful advice and suggestions.

1. INTRODUCTION

Since the end of the second world war, petroleum has not only become the chief source of energy (as against coal and hydro-electricity - the former two main sources) but also the major source of chemicals for industries. It is therefore not surprising that the polymer industry based on petrochemicals has grown very rapidly over the last two decades. The growth of the polymer industry has until hitherto been mainly confined to the developed countries of Europe, America, Japan and Australia owing largely to the very heavy capital and specialized skill involved in its establishment. In recent years, however, there has been a gradual spread of the industry into the developing countries of Latin America and the ECAFE region. Africa and the Middle East, which form the bulk of the petroleum producing and exporting countries in the world still rank the least in the establishment of petrochemical and hence polymer processing industry.

With a production of more than 2.3 million barrels per day, Nigeria ranks as the seventh leading producer of crude oil in the world. Of this output, only about 3% is refined in the single refinery in the country and the remaining 97% is exported. Her production of natural gas is about 2.5 billion cubic metres per month, 98.5% of which is flared. It can thus be seen that Nigeria is abundantly rich in the raw materials required in a petrochemical complex. The Nigerian Government has already made plans to build a second oil refinery and there are some indications that a petrochemical unit may be built in the country in the near future.

2. THE PRESENT STATUS OF PLASTICS INDUSTRY

Even though there is no polymer processing industry in the country as yet, there are a number of plastics fabricating industries centred mostly around Lagos, the Federal Capital. Most of these industries are small-scale, requiring few highly skilled personnel. Their functions can be divided into five main categories (Table 1):

(a) Film extrusion
(b) Injection moulding
(c) Blow moulding
(d) Compression moulding
(e) Spreading and Calendering.

The raw materials for these industries are mainly thermoplastic resins (viz: high and low density polyethylene, polypropylene, polystyrene, polyvinylchloride), plasticisers, stabilisers, pigments and some other chemicals like flame retardants, antioxidants and U.V. absorbers. All these materials are imported. As a result of the recent world oil crisis and the increase in the posted prices of the oil producing and exporting countries, there has been a sharp increase of 200 - 300% in landed costs of the synthetic resins. The reaction from these industries has been twofold: increases in the selling prices of the products and/or reduction in labour force and plant output. The Nigerian Government has come to the rescue of the industries by allowing a concessional 10% import duty (on plastic raw materials) to holders of approved users' certificates, and by waiving the 5% excise duty hitherto payable on the finished products.

The major products from these industries are packaging films, moulded household materials, sheets, imitation leather, foot wears, ball-pen covers, toys, pipes, tubes and brushes. The Nigerian Enterprises Promotion Decree leaves the plastic fabricating industry unclassified thereby giving equal chance of participation to all entrepreneur. Consequently, like in all developing countries, the industry is still heavily dominated by foreign firms.

The labour force in these fabricating industries ranges from 150 to 500 and is largely unskilled except for the plant maintenance crew and some technologists, who perform the routine quality control tests.

3. MARKET FOR PLASTICS PRODUCTS

There are, at present, 31 plastics fabricating industries in the country importing on the average 2,500 metric tons each of thermoplastics annually. All the products from these industries are consumed internally. A large proportion of these are sold in the local markets while the rest, mainly packaging films, are produced on contract terms to the specification of customers.

The demand for plastics products in the country is much higher than what the existing fabricating industries can supply. A survey of the imported plastics raw materials (thermoplastics, thermosets and cellulose-based) from 1966-1971 (Table 2) shows a steady increase in the

demand for plastics. A vivid picture of the demand for plastics products in the country cannot be focussed in this paper as a result of some difficulties in obtaining the accurate statistical figures. However, based on the 1971 figures of the imported plastics raw materials and with a population of 66 million, the per capita consumption (excluding the imported plastics products) was 2.1 kg. This figure has increased by now owing to a much higher standard of living from 1971 to date in programmes implemented by the Government.

4. FUTURE PLANS OF DEVELOPMENT

The growth of plastics industries in the country is entirely dependent on the Government. As stated in the introduction, Nigeria is very rich in the basic raw materials for plastics processing. An economically viable plastics processing industry cannot thrive in the country without a petrochemical complex to supply the primary chemicals. An iron and steel plant (to supply the machinery for the plant-parts and construction of moulds) will to a very large extent facilitate the growth of the industry.

The Government has already embarked on the building of an iron and steel complex. Her plans to build a petrochemical complex have taken-off the ground. The future growth of plastics processing in the country thus appears bright.

The Government has her own policy on raising the finance to implement such a project. The difficulties posed by inadequate availability of "technical know-how" are usually solved by allying with well established organizations, companies or countries rich in "technical know-how" while simultaneously personnel training / development programmes (sponsored by the Government either entirely or with the aid of some foundations and such bodies like UNIDO) take place.

5. CONCLUSION

Nigeria is in a wave of oil boom. Oil is a wasting asset, the existence of which is temporary. Needless to say, maximum revenues can only be realized from it when a petrochemical complex big enough to allow the production of plastics and other important by-products (fertilizers and pharmaceuticals) is built.

TABLE 1

The five major components of a fully integrated thermoplastics fabrication industry and the number of such components in Nigeria:

	Components	Number
(a)	Film extrusion	14
(b)	Injection moulding	21
(c)	Blow moulding	9
(d)	Compression moulding	2
(e)	Spreading and calendering	3

Total number of plastics fabricating industries: 31

TABLE 2

NIGERIA IMPORTS OF RAW PLASTIC MATERIALS: 1966 - 1971

YEAR	'A' Products of Condensation Polycondensation and Poly addition, etc		'B' Product of Polymerization, and copolymerization e.g. Polythene		'C' Regenerated Cellulose Chemical dirivatives of Cellulose and Vulcanised fibre.		'D' Other artificial resins and plastic materials		'E' GRAND TOTAL	
	Quantity (Kg)	Value ₦	Quantity Kg.	Value ₦	Quantity Kg.	Value ₦	Quantity Kg.	Value ₦	Quantity Kg.	Value ₦
1966	4,090,625.28	348,174	4,063,523,52	337,340	7,035,517.44	668,228	23,835,376.32	2,121,722	39,025.042.56	3,47[illegible],464
1967	23,146,384	284,108	3,921,550.08	251,158	9,171,583.68	627,658	27,948,130.56	2,149,892	64,189,648.32	3,312,816
1968	2,260,883.52	181,532	3,373,796.16	252,446	5,868,898.56	517,830	51,004,517.76	3,401,226	62,508,096	4,353,034
1969	2,225,576.64	190,896	6,747,840.96	604,582	8,036,293.44	856,824	72,416,897.28	4,974,468	89,426,608.32	6,626,770
1970	8,312,283,84	514,644	24,631,521.60	2,287,690	10,484,651.52	1.063,868	91,183,747.20	7,555,292	134,612,204.16	11,42[illegible],494
1971	2,570,191.68	232,946	12,250,741.44	1,260,334	14,794,825.92	1,178,062	111,832,553.28	9,633,758	141,448,312.32	12,305,100

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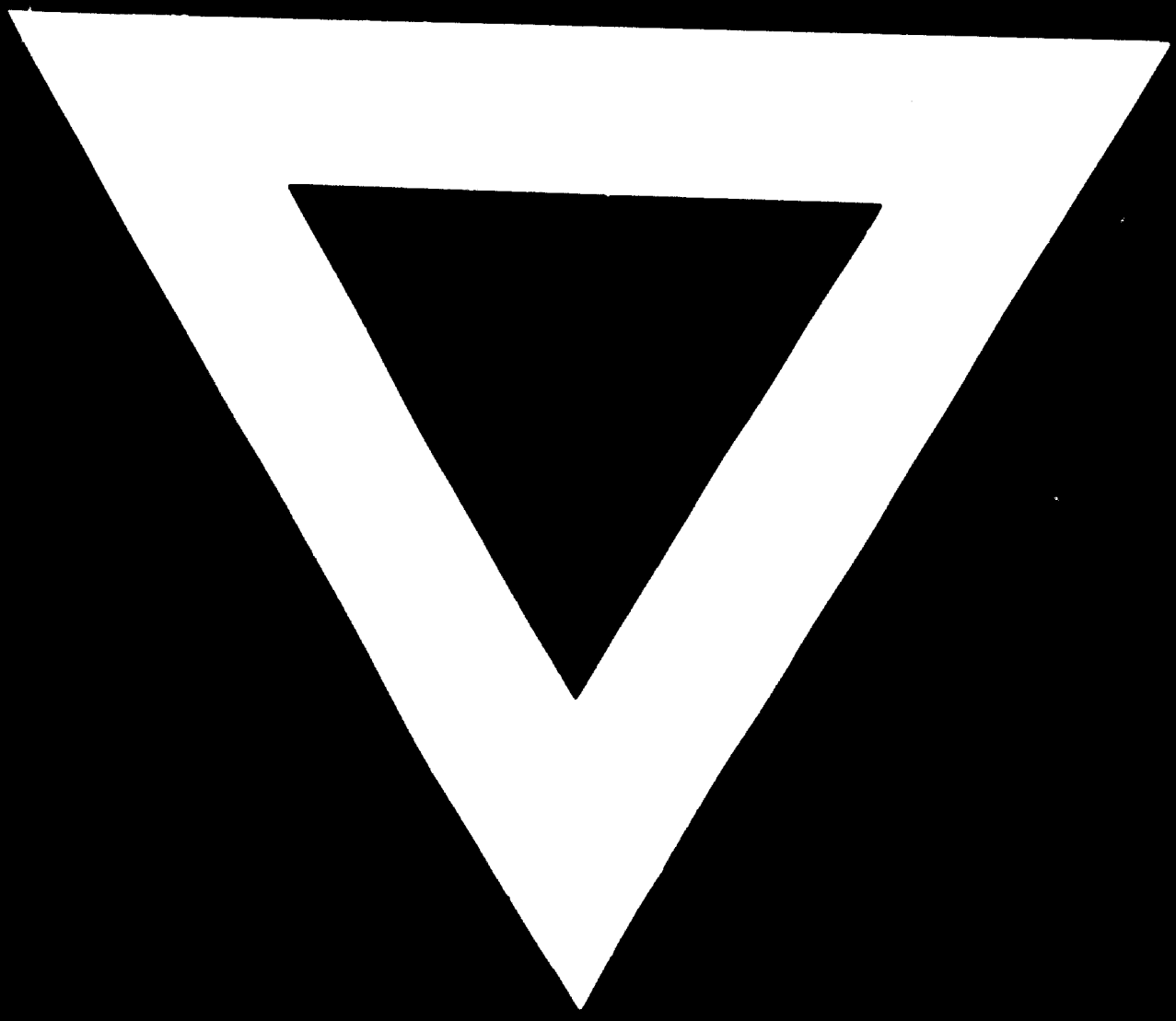

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